Occupational Outlook Quarterly

In this issue:

School and Work Trends in Employment of School-Age Youth

Scholarships in the Space Age

The Use of Television in Guidance

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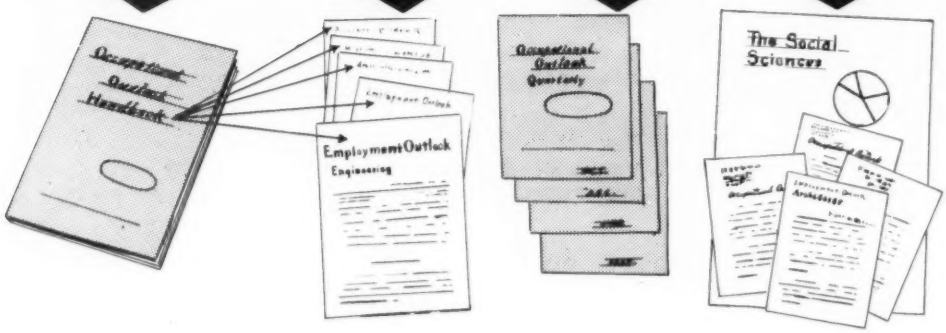

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SCHOOL AND WORK

Trends in Employment of School-Age Youth

by Miriam Fuhrman
Bureau of Labor Standards

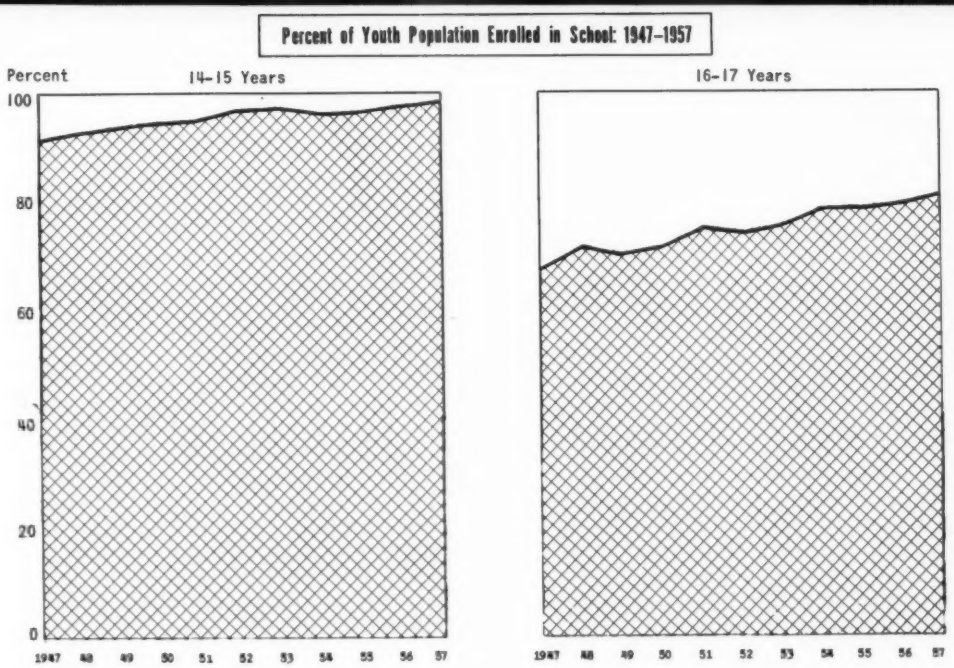
The proportion of boys and girls who leave school before graduation to enter full-time employment has been declining over the past several decades. (See chart 1.) It might appear from this trend that the importance of teen-agers to the work force has been steadily diminishing. However, this is not the case. What has happened is that a growing number of young people are combining school with part-time work.

Working Students

In 1947, about 1 out of 8 youngsters aged 14 and 15 worked at a full-time or part-time job. Of those working, about 70 percent were still enrolled in school and working part time. (See chart 2.) By 1957, although the percentage of 14- and 15-year-old boys and girls who worked had not changed, the proportion in this age group who were still enrolled in school had increased

Chart 1.

ATTENDING SCHOOL IS INCREASINGLY THE MAIN ACTIVITY OF YOUTH



to more than 95 percent. To look at the figures another way, in 1957, 19 out of every 20 workers in this age group were still in school, compared with only 14 out of 20 in 1947.

An even more dramatic change occurred among the 16- and 17-year-olds, who are, of course, much more likely to seek work than the younger boys and girls. A little more than a third of all 16- and 17-year-olds were at work in 1947. Of those who worked, the majority (60 percent) were out of school and working full time; the rest (40 percent) were still in school and working part time. By 1957, the situation was reversed. Although the proportion of 16- and 17-year-olds who had jobs was still about 1 in 3, the great majority (70 percent) were enrolled in school; only 30 percent, or half as many proportionally as in 1947, were out of school and working full time.

Part-time employment will continue to rise in coming years as the population in the 14- to 17-year-age group increases from 10 million in 1957 to an estimated more than 14 million in 1965, and as a greater proportion of boys and girls complete high school.

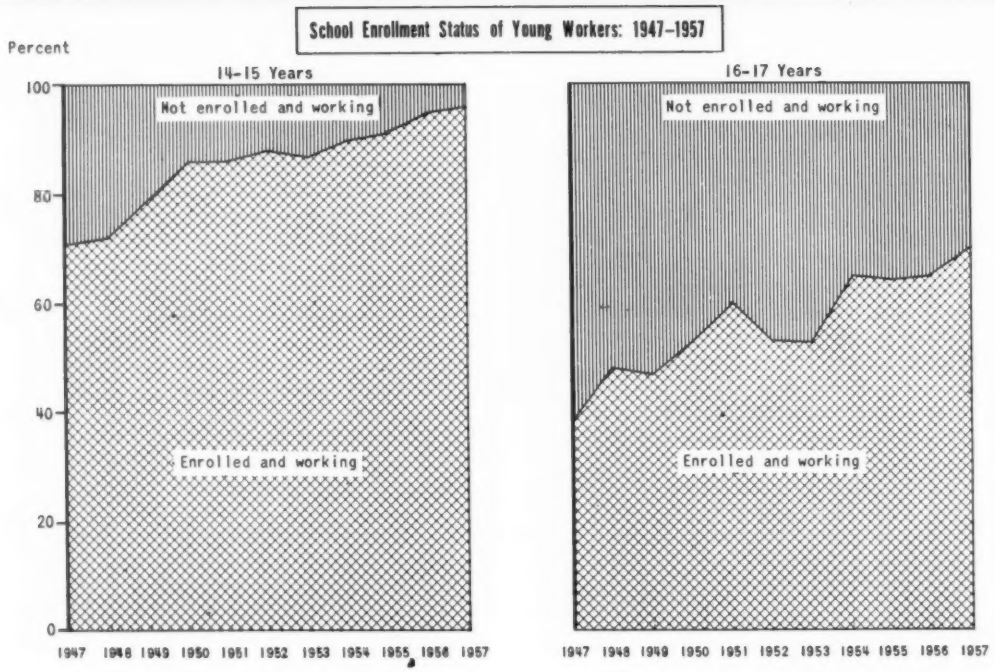
Types of Jobs

Students work in a wide variety of jobs, but fewer than 10 percent of them --as contrasted with more than 20 percent of all workers--are employed in manufacturing industries.

Through the school year, many students work in drug stores, 5- and 10-cent stores, gasoline stations, laundries, restaurants, movies, bowling alleys, and offices. They work in canneries and other food processing plants. Many

Chart 2.

YOUNG WORKERS UNDER 18 ARE INCREASINGLY STUDENTS EMPLOYED OUTSIDE SCHOOL HOURS



high school boys deliver newspapers, and some girls are employed in domestic service.

During summer vacations, a great many students are employed in agriculture. A sizable number also work on farms during the school year. In October 1957, about 484,000 in-school youths were working in agriculture, some working weekends and after school, others attending schools that declare "crop vacations" during harvesting time. (See chart 3.)

Why Students Work

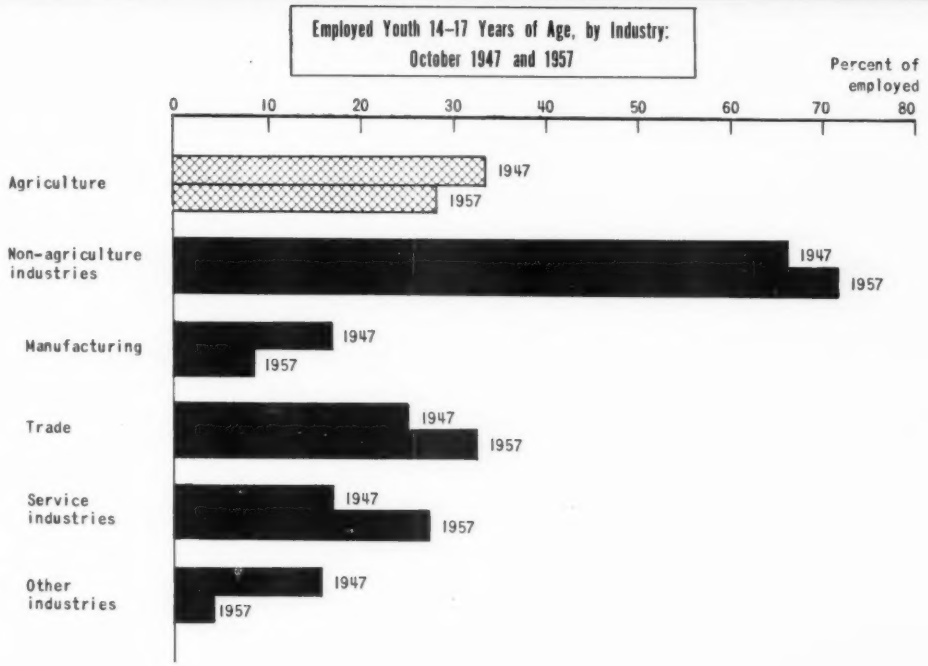
Part-time employment of students is a natural outcome of a number of trends in American life. The goal of a high school education for all who can profit from it means keeping boys and girls in school through the period when the desire for independence becomes urgent. Many find an outlet for this desire by operating a school paper or participating in one of the clubs or in other extracurricular activities. Others satisfy it by working.

Students who work are of all levels of ability and are enrolled in vocational, general, and college preparatory courses as well as special classes for slow learners. They also come from families at various economic levels.

Many students have to work if they are to stay in school. From their earnings, they are able to pay for their clothes and other school expenses. For other students, whose families have somewhat higher incomes, work offers the opportunity to obtain a car or a hi-fi set. There are also some student workers whose families can provide everything except the feeling of independence a job gives. A job is a status symbol to many students.

Chart 3.

THREE-FOURTHS OF ALL YOUTH EMPLOYMENT IS IN NONAGRICULTURAL INDUSTRIES--CHIEFLY TRADE AND SERVICE



Many students feel that the best way to obtain a job when they are out of school is to get some work experience before they leave. It often seems that jobs are more easily obtained by students than by young people who leave school before graduation.

There is much less work around the home for young people today than there used to be. The trend from the farm to urban living, increased apartment dwelling, modern methods of food merchandising, and the laborsaving devices in use everywhere have made it difficult for parents to find constructive "chores" for youngsters to do. A job away from home is one answer to the question, "What shall I do?"

School-Supervised Work

Another factor in the increased employment of students is the growth of "work experience education" programs in the schools. Such programs were established in high schools on an experimental basis in Fitchburg, Mass., in 1908; York, Pa., in 1911, and New York City in 1915. But it was the Smith-Hughes Vocational Educational Act of 1917, which authorized apportionment of Federal funds to the States to encourage education for trade and industrial employment that gave strong impetus to these programs. In 1946, the George-Barden Vocational Act extended this aid to States for education in the distributive trades. Under these two programs, students are required to spend at least as much time on their jobs as they spend in classes and must average not less than 15 hours a week at work. In 1957, almost 200,000 students were working in Trade and Industry programs and about 350,000 in Distributive Occupations, subsidized under the Smith-Hughes and George-Barden Acts.

In addition to the federally aided programs, other types of work experience programs are often sponsored by local school systems.[1] Some of these programs are as vocationally oriented as those subsidized under the Smith-Hughes Act. High school business education departments, for example, frequently arrange for students to work in business offices before graduation as part of their training. Many high schools in smaller communities where it is not possible to organize separate classes for many different trades, provide what is called "diversified occupations" training under which students work in stores, in offices, and in industrial jobs. Admittedly, this last type of program does not prepare students for highly skilled trades, and most of the job training is done by the employer, with schools providing related training.

Special education classes for slow learners also include work experience education for their older students. These students, most of all, need to learn a specific action in a concrete situation, and the cooperative programs enable them to receive the patient and repeated job instruction they need to become successful workers even in simple repetitive jobs.

Work experience is a part of the general education program in many high schools. In such cases, the jobs need have no relation to the vocational objectives of the students. Some educators arrange for work experience on a voluntary basis in nonprofit community agencies such as hospitals, governmental offices, libraries, playgrounds, settlement houses, and in the schools themselves, in the belief that practice in civic responsibility is necessary in a society that depends so greatly on such efforts. Then, too, such assignments enable the schools to provide students with opportunities for vocational exploration not possible otherwise as they assist doctors, nurses, scientists, architects, lawyers, social workers, and other professionals in government agencies and nonprofit organizations.

Other Part-Time Work

Despite the variety of school-sponsored programs, probably most students work

[1] Dr. Dewitt Hunt, Work Experience Education Programs in American Secondary Schools (Bull. 1957, No. 5), U. S. Department of Health, Education, and Welfare, Office of Education, Washington 25, D. C.

outside school hours on part-time jobs which they secure on their own, usually without their teachers' knowledge. Here there are no related courses to capitalize on the knowledge the student gains on the job, and there is no supervision by the school on hours worked, conditions of employment, or interference with studies.

Many educators question this unsupervised employment of high school students. In an article in the National Education Association Journal, Nobember 1957, Martin R. Katz of the Educational Testing Service in Princeton, N.J., points up some of the dangers. He says that in many urban areas as many as 80 percent of the high school students hold jobs which, with required hours of school attendance, make up a 60-hour week. He also points out that while many save their money for high school or college expenses, others spend it in ways that divert their attention from their studies.

When a student goes to school from 8:30 a.m. to 2 p.m. and works from 3 p.m. until 9 or 10 o'clock, his interest in school wanes. He is unable to attend the games or participate in the school activities of his classmates. One can only speculate about what happens to his relations with his family, or the effect on his health of hit-or-miss meals, late hours, and the strenuous schedule.

Legal Regulations

Because of the harm that may result from long hours and work during the late night hours, 21 States limit the hours of work of minors 14 and 15 years of age. Seven of these States also have some limitation on the hours of work of those aged 16 and 17. Eighteen States and Alaska, Hawaii, and Puerto Rico prohibit work by minors under 16 during 12 or more of the night hours and 10 States prohibit work by minors under 18 during 8 of the night hours. However, there are 15 States that have few, if any, restrictions on nightwork for boys 16 or 17. Furthermore, there is no nightwork prohibition at all for minors 14 and 15 years old in 4 States, although most other States have a 6 p.m. or 7 p.m. limit for young people in this age group.

Boys and girls of 14 and 15 who work in occupations permissible for this age group under the child-labor provisions of the Fair Labor Standards Act are limited to employment outside school hours for a maximum of 3 hours on any school day and 8 hours on a nonschool day. In addition, their weekly hours of work are limited to 18 when schools are in session and 40 during vacation and they may not work after 7 p.m. There are relatively few occupations in establishments covered by the Fair Labor Standards Act, however, that are open to minors under 16.

Employment or age certificates are required by law for minors under 18 in 22 States, the District of Columbia, Hawaii, and Puerto Rico. Where the required certificates are issued by schools, there is machinery available for checking on the effects of the job on academic achievement and health. Too often, however, communications are poor between the certificate-issuing office and the teacher who has the closest contact with the student.

Counselors find that the records of the office issuing employment certificates give them valuable leads on students referred to them. Certainly, counselors should know about the workloads students are carrying in addition to school.

Recommendations

Since more and more high school students have programs that include both school and a job, parents and counselors need to take account of the effects of the job on the students' academic progress and their school and home life, and see that hours are not too long or work too strenuous. Perhaps more control could be exercised over the employment certificate system, and more States should have these controls. Teachers should be notified routinely when students in their classes secure such certificates, since they can capitalize on the job interests and experience

of their students to make classroom learning more meaningful. Employers who can arrange their schedules to employ part-time workers can draw on a large pool of students, and participate in the efforts of parents and schools to prepare students for adult responsibilities.

School-supervised programs provide the best opportunity for constructive work experience with the least interference with the students' normal life. More such projects are needed. By 1965, there will be 14.3 million boys and girls of high school age, and most of them will be in school. Furthermore, a continued upward trend in the proportion of students working is likely. Probably there will need to be an increase of several million part-time jobs to satisfy the high school students who will be seeking work in 1965.

For boys and girls of high school age, a job is often both a symbol and an aid to their growing maturity. Parents and counselors, however, should make sure that work does not interfere with family life, health, academic progress, or the more valuable school experiences that might be sacrificed. Schools can hardly escape responsibility for providing guidance in an area that may have such profound effects on their students' development.

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SCHOLARSHIPS IN THE SPACE AGE

Information on Scholarships and Other Financial Aids to College Students

by S. Norman Feingold

The United States college population is growing rapidly. More than 3.2 million young people are now attending college, and the number of college students is expected to reach 6 million by 1970. The costs involved in obtaining a higher education, which have grown rapidly in recent years, are also expected to continue rising.[1] Obviously, the problem of providing financial help to college students is becoming more and more acute.

Scholarships are probably the most predominant form of financial help. Typically, a scholarship is awarded to an able but financially needy student at the undergraduate level to help close the gap between the student's financial resources and the total cost of a higher education.

More than $110 million in scholarship assistance was awarded last year by colleges, universities, foundations, fraternal organizations, labor, and management, with additional scholarship funds being created each week, particularly at the local level. A very rapid growth of these aids has taken place during the past 5 years. The launching of the first sputnik in October 1957 further accelerated the trend. On a national level, great interest is now being shown in these efforts by both well-established foundations and by relatively new funds. For example, one relatively new fund--the Fannie and John Hertz Engineering Scholarship Foundation--is providing scholarship funds to young people interested in careers in engineering and science. An example of an older organization interested in student financial aid is the National Foundation (formerly the National Foundation for Infantile Paralysis) which is now working on a multimillion-dollar plan for scholarships in the health field.

However, in spite of the tremendous growth in the number of scholarships over the last 5 years, it is conservatively estimated that more than $275 million in scholarships will be needed annually to meet the demand in the next few years.

Educators today recognize that scholarship aid is a very important consideration in planning a career. Too often, information about scholarship funds is given for the first time so late in high school that motivation for further schooling may be lost by students at lower economic levels. It is never too early to start thinking about making scholarship funds available to students who have ability and wish to further their education.

Types of Scholarships

Scholarship awards are often classified into three different groups--general, regional, and special.

General scholarships are usually available to candidates regardless of residence, religion, race, or contem-

*Dr. Feingold, who is now National Director of the B'nai B'rith Vocational Service, with headquarters in Washington, D. C., is the author of the three standard reference volumes in the series entitled Scholarships, Fellowships, and Loans. A fourth volume is scheduled for publication in 1959. At present, he is in charge of compiling a Directory which, when published, will list all student aids offered by B'nai B'rith lodges, chapters, and departments throughout the United States.

[1]See Ernest V. Hollis, The Cost of Attending College (in Occupational Outlook Quarterly, February 1958, p. 3).

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plated course of study. Examples of general scholarships are those of the General Motors National Scholarship Program with offices in Detroit, Mich., and the National Merit Scholarship Program with headquarters in Evanston, Ill. An interested person may be placed on their mailing lists by writing them for future scholarship announcements.

Regional scholarships require that recipients be from a certain school or from a particular region. The region may include a number of States or it may be limited to a very small town. For example, awards from the C.M. Gooch Foundation for Educational Advancement are limited to young people from west Tennessee, north Mississippi, and east Arkansas. On the other hand, the John McIntire Trust gives financial aid only to residents of Zanesville, Ohio.

Special scholarships may be restricted only to qualified candidates of certain ancestry, religious faith, place of employment, vocational goal, specific organization membership, and so forth. Other special funds may require recipients to study certain subjects. The current trend is toward more special scholarships in engineering, mathematics, and science.

Scholarship awards range from as little as $25 to as much as $2,000 or more. Most awards are for less than $500. In many cases, recipients find it necessary to get aid from more than one fund.

Need and Good Grades Count

Most scholarships specify need and good grades as required qualifications. In addition, many require students to do well on certain aptitude tests.

The criteria for evaluating need and grades depend on the particular funds, and there are wide variations. In general, however, if family income is more than $9,500 a year, the children are ineligible for most scholarship funds.

The need factor is increasing in importance. The administrators of many private funds, in deciding between 2 equally qualified candidates or even where 1 applicant is somewhat superior scholastically, choose, in most instances, the person whose economic need is greater. Further information as to how need is determined may be obtained from the College Entrance Examination Board in Princeton, N. J., or by referring to the November 1956 issue of the Scholarships, Fellowships, and Loans News Service. This quarterly, a national clearinghouse of student aid information, lists local and national scholarship funds as they are established. This service may be available in the local high school, college, or public library.

Length of Awards

There are wide variations in the length of scholarship awards; however, most funds do not grant help for more than 4 years. Many funds give awards for the stated academic year, and require that recipients report their programs and maintain certain academic standards to qualify for the award for a second year. Many private funds give a grant for one semester's work and renew the award each semester if need is shown and the recipient meets required standards. There are also a good number of funds which specify that although a candidate becomes a recipient for a particular year, he must reapply each time he needs an award and compete with present candidates.

There is some evidence that renewable type scholarships bring about significant improvement in recipients' efforts that result in substantially higher grades.

Some Practical Suggestions

With more than 300,000 scholarships awarded annually, it is not unusual for students, parents, and teachers to be confused about what students must do in order to qualify for one.

Scholarships are not as easy to get as some young people think, and obtaining one requires careful planning. Here

are a number of practical suggestions which may be helpful in obtaining the scholarship and other financial aid that students need to further their education.

1. Scholarship planning for many boys and girls is a critical part of career planning. It is important that parents, teachers, counselors, and students know at an early date the requirements of various scholarship funds. Students should know how to write a satisfactory letter when sending for the application forms, and how to fill out a scholarship application accurately and neatly, because the forms are often used as a screening device. Applications should be filed and required tests taken well ahead of the deadline. A great many colleges now have a scholarship shelf in their libraries. Many have set up rosters of the funds which they administer.

2. Local sources of scholarship information should be investigated. Too often young people miss educational opportunities available in their own backyard. Many communities now have a directory of school funds available locally. Buffalo, Chicago, Cleveland, Philadelphia, Minneapolis-St. Paul, and Worcester are among the first communities to make such lists available. In smaller communities, service organizations and women's groups, particularly, have been active in compiling such data. Colleges and community educational and vocational guidance programs in many large cities supply information on local scholarship funds. High schools frequently set up scholarships to help talented and needy students. Many States offer scholarships, with New York and California now awarding the largest amounts. In addition, there are scholarships for the physically handicapped administered by the offices concerned with vocational rehabilitation in each State in cooperation with the Department of Health, Education, and Welfare.

3. A primary source of scholarships is the college or university itself. When a student writes for a college catalog, he should also ask for the separate student aid announcement, bulletin, or directory which will contain detailed information about the funds for which he may be eligible. The University of Michigan, which awards the largest number of scholarships, issues a student aid directory of over 100 pages. Some colleges require applicants for scholarship aid to pass a scholastic aptitude or some other special test. To learn of these requirements in colleges that are members of the College Scholarship Service, one should write to, and register with that Service in Princeton, N. J., or to the College Entrance Examination Board, Educational Testing Service, 4640 Hollywood, Los Angeles, Calif.

4. Students should consult scholarship books and directories.[2] Parents, counselors, teachers, and students will find it helpful to go over such books together, since they contain much information that can make a college career possible and successful. Some high schools (such as the one at Brookline, Mass.) have scholarship newsletters written by staff members, and some also have scholarship coordinators.

Students will be helped by reading everything they can about scholarships. Popular and professional magazines, newspapers, trade magazines, and house organs contain a great deal of useful scholarship information. For example, if a student's vocation is art, he should read an art magazine, such as American Arts, Art News, and Art Digest, which mentions student aid available in the art field.

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[2] S. N. Feingold, Scholarships, Fellowships, and Loans, Vols. I (1949), II (1951), and III (1955). Bellman Publishing Co., Cambridge, Mass.

R. J. Fornwalt, Scholarship Information Sources for Educational and Vocational Counselors, 1957 Revised Edition. Big Brother Movement, New York.

R. C. Mattingly, Financial Aid for College Students (Graduate), Bull. 1957, No. 17, U. S. Department of Health, Education, and Welfare. U. S. Government Printing Office, Washington 25, D. C.

T. B. Wilkins, Financial Aid for College Students (Undergraduate), Bull. 1957, No. 18, U. S. Department of Health, Education, and Welfare. U. S. Government Printing Office, Washington 25, D. C.

5. There is a very rapid growth of private local scholarship funds all over the United States; some of these new funds may not even be listed in a local directory. Various local groups, such as the American Legion Auxiliary, Elks, Kiwanis, Lions, Masons, Optimists, PTA, Ouota, and Rotary should be consulted. Kiwanis is particularly active in the scholarship field. One of the most unusual programs of scholarship help at the local level is that sponsored by Kiwanis in Ouincy, Ill. Further information can be obtained about this program by writing them for details.

6. Industrial scholarships are increasing at a tremendous rate at both the local and national levels. Funds available may be from the concerns in which the parents of the students, or the students themselves, work. Hundreds of firms at the present time are setting up scholarship programs and many hundreds have established aid programs.

7. Thousands of business concerns today have tuition refund plans for both employees and employees' children. The company may pay for only part of a course or for full tuition. A study of company tuition refund plans published by the American Management Association is available in many school and public libraries.

8. Union scholarships offer another source of aid. A great many unions now have scholarship aid available to their members or to others who apply. Many of these aids are in the form of contests and awards. Local unions have information about national and local union scholarships for which students may qualify. For a small sum, a list of most union scholarships may be secured by writing to the AFL-CIO, 815 16th Street NW., Washington 6, D. C.

9. Under the War Orphans Educational Assistance Act administered by the Veterans Administration, children of those veterans who have died as a result of service-connected injuries or diseases are eligible for educational assistance allowances for up to 36 months of schooling. Under this program, full-time students ordinarily receive $110 a month while attending an approved training course. Generally, students must be from 18 to 23 years of age to receive these benefits. Further information about this program can be obtained from the nearest Veterans Administration regional office.

10. Some private veterans organizations provide scholarship funds and information. For example, local representatives of the American Legion may be able to tell students about the scholarships offered by the American Legion and its auxiliaries, or a copy of Need a Lift? can be obtained from the organization's national headquarters in Indianapolis. For veterans and their families, this publication provides valuable information about funds available on the local level.

11. Most religious groups have increased the student aid available for young people. National agencies sponsored by various faiths often have information available on a local and national level. Clergymen of the different faiths in each area can provide this information.

12. Many scholarship funds are directed toward helping young people who have worked part time, full time, or at temporary summer work. (It is helpful for students seeking such scholarships to get some work experience as early as possible.)[3] Some funds require that recipients of their scholarships earn certain amounts during the summer.

More and more college students take part-time jobs in order to help meet the rising costs of college. More than $101 million was earned by college and university students employed on a part-time basis. At the University of Wisconsin alone, more than 8,000 students worked part time. At California State Polytechnic College, 72 percent of the students were employed. A number of colleges now follow a policy set up at Harvard University under which students

[3]S. N. Feingold and H. List, How To Get That Part-Time Job--A Handbook of Job Opportunities Available Now. Arco Publishing Co., New York, 1958.

are given advice and help in starting a small part-time business while at school to meet expenses.

13. Students interested in scholarships should enter contests approved by the National Association of Secondary School Principals. For most of these scholarship contests, it is not necessary to show financial need. Information on this aid can be obtained by writing to this organization at 1201 16th Street NW., Washington 6, D. C.

14. Administrators of many scholarship funds prefer the student with wide interests to the one who excels only in his studies. They are interested in the youth who takes part in extracurricular activities or has a worthwhile hobby. A student who makes a positive contribution to the community is looked upon with marked favor. Volunteer activity can be particularly helpful toward achieving a scholarship.

15. There are still a number of scholarships with unusual requirements that are not being filled, although the number has diminished in recent years. A student should check to see if he may be qualified for one of these. His name may have to be Anderson, he may have to have been born in a particular location, or he may have to show a reputation for truthfulness, belong to a particular club, or work for a certain concern.

16. A number of scholarships are sponsored by private individuals who give their money without publicity. Teachers may know of someone who is interested in sponsoring exceptional students who want a higher education.

17. Many Congressmen help by filling requests for copies of recent student aid bills, such as that passed recently by the 85th Congress. (See page 15.) In addition, Congressmen may be especially helpful to students who wish to attend West Point, Annapolis, the Coast Guard Academy, or the Air Academy. These academy programs, as well as the Reserve Officers Training Corps and the Naval Reserve Officers Training Corps, are all forms of scholarship help.

18. Some State and municipal schools have free or reduced tuition for residents of their areas. If a family can choose the city or State in which they will live, taking up residence in an area where free schools are available can help considerably. Attending a college where the tuition and other expenses, although not free, are considerably lower than at most other colleges, also reduces college costs.

A few private schools also provide free or reduced tuition to qualified applicants. An unusual case is the Webb Institute of Naval Architecture, in which all students have scholarships which cover not only tuition but also board, laundry, lunches, and books.

19. Another form of student aid--scholarship loans--also shows a striking growth. A recipient may expect a scholarship during the first few years of college and an educational loan from the same fund for the remaining years. In some instances, the loan is cancelled if the recipient has not shown exceptional promise in his school endeavors. Sometimes it is easier to obtain a loan than a scholarship. Many colleges and universities, such as Harvard, are increasing the amount of loans. State departments of education can give details on how and where to apply for loans.

20. An additional method of helping needy students pay for college is to spread the cost through a variety of payment plans. In some schools, tuition may be paid through the school year rather than in full at the beginning of the term. A number of colleges arrange for students to spread their payment of tuition over periods up to 8 years, through small monthly payments. Under one of the more common plans, parents may begin college tuition payments while students are in high school.

The Tuition Refund Plan, located at 347 Fifth Avenue, New York, advances money at low interest rates to cover essential fees and tuition. It may cover 1, 2, 3, or 4 years of schooling. Payments begin with the first month of school. During the period of coverage, the parent's life is automatically insured.

The Tuition Refund Plan will send a free booklet upon request.

The Insured Tuition Payment Plan at 112 Water Street, Boston, Mass., is another well-known student aid. For free literature describing this method of paying educational expenses, write to Richard C. Knight at the Plan's address.

A new development known as the College Club has been adopted by more than 300 savings banks. Both child and parent become regular joint depositors under the plan. Local banks may have information about the club or similar plans. Some savings banks now offer a free leaflet describing sources of scholarship funds.

21. Some schools, such as Antioch College, Yellow Springs, Ohio, and Drexel Institute of Technology at Philadelphia, Pa., permit students to attend school part of the year and work at jobs for the rest of the year.

22. For those students interested in study and travel abroad, a number of aids--such as the Student International Travel Association Scholarships--are available. The Experiment in International Living, located in Putney, Vt., will send details of community scholarships for study, work, and travel abroad. Some private high schools in the United States have exchange educational opportunities with high schools in various foreign countries. Students who wish to travel and study in Latin America may apply for a scholarship to the Cordell Hull Foundation. Other Latin American scholarship opportunities are listed in a booklet published by the Pan-American Union in Washington, D. C. All scholarship opportunities listed in Study Abroad, published by the United Nations Educational, Scientific, and Cultural Organization, should be investigated. The Institute of International Education, located in New York City, also helps students who wish to study abroad and need scholarship help.

A student who has talent and ability should be encouraged to exert every effort to obtain the scholarship help needed. The parent, teacher, counselor, and student working together can do much more than the boy or girl alone.

EMPLOYMENT AND EARNINGS

Provides Counselors with Current Information on Earnings of Employees in Industry

This monthly periodical, prepared by the U. S. Department of Labor's Bureau of Labor Statistics, presents current data on average weekly and hourly earnings of production (non-supervisory) workers in more than 350 different industries. Each issue also includes data on average earnings of factory production workers for more than 120 metropolitan areas and all States, and statistics on national, State, and metropolitan area employment in nonagricultural industries.

Monthly issues of Employment and Earnings, together with a 200-page annual supplement, are available by subscription to the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Price, $3.50 a year ($1 addtional for foreign mailing).

THE NEW NATIONAL DEFENSE EDUCATION ACT

At its 1958 session, the Congress passed, and President Eisenhower signed, an act which will have far-reaching implications for education and guidance in the United States. This act is known as the National Defense Education Act of 1958.

The purposes and philosophy of the act are stated in its preamble:

> *The Congress hereby finds and declares that the security of the Nation requires the fullest development of the mental resources and technical skills of its young men and women. . . This requires programs that will give assurance that no student of ability will be denied an opportunity for higher education because of financial need; will correct as rapidly as possible the existing imbalances in all educational programs which have led to an insufficient proportion of our population educated in science, mathematics, and modern foreign languages and trained in technology.*

The act provides for:

1. Loans to students in institutions of higher education.

2. Financial assistance for strengthening science, mathematics, and modern foreign-language instruction.

3. Fellowships for graduate study to prepare teachers for institutions of higher education.

4. Financial aid to the States to assist them to establish and maintain programs of guidance, counseling, and testing, and to train counselors.

5. Strengthening of instruction in modern foreign languages and in information about foreign countries in institutions of higher education.

6. Support for research and experimentation in more effective utilization of television, radio, motion pictures, and related media for educational purposes.

7. Support for area vocational education programs.

8. Support for a Science Information Service in order to disseminate scientific information more effectively.

9. Support for improvement and strengthening of the educational statistics developed by State and local agencies.

The Office of Education of the U. S. Department of Health, Education, and Welfare is responsible for the administration of all the provisions of this act except the Science Information Service, which will be administered by the National Science Foundation.

Because of the importance of this act to the field of guidance, an article on some of its major provisions will be published in a forthcoming issue of the Occupational Outlook Quarterly.

WORK-LIFE PATTERNS AND EDUCATIONAL LEVELS

How Educational Levels Are Related to the Length of Working Life

by Stuart Garfinkle

Higher education's rewards in terms of wider job opportunities and greater income are common knowledge. However, young people in planning their education and careers probably do not give much thought to the number of years of life and work lying ahead. The mere fact that an 18-year-old youth, on the average, can expect to live about 51 more years merits serious consideration in deciding about the advisability of spending some of those years in getting advanced education.

A new study to be published by the Bureau of Labor Statistics provides some additional facts on work-life expectancy (the measure of the average number of years of work remaining for people in each age group). In this study, for the first time, differences in the length of working life of men with varying amounts of education have been measured.

Work-Life Expectancy

The study indicates that work-life expectancy increases as the level of education increases.[1] For example, a 25-year-old man who had completed schooling through the eighth grade could expect to work, on the average, 38.6 years compared with 38.9 for a high school graduate and 39.9 years for a college graduate of the same age. What significance do these findings have for a young man planning a career? At first thought, one might be dismayed by the idea that by spending four costly and rigorous years at college he will probably commit himself to working a year and a third longer than the young man who completes only the eighth grade. (See chart.) Further examination, however, shows that the longer work-life of college graduates arises out of choice rather than necessity.

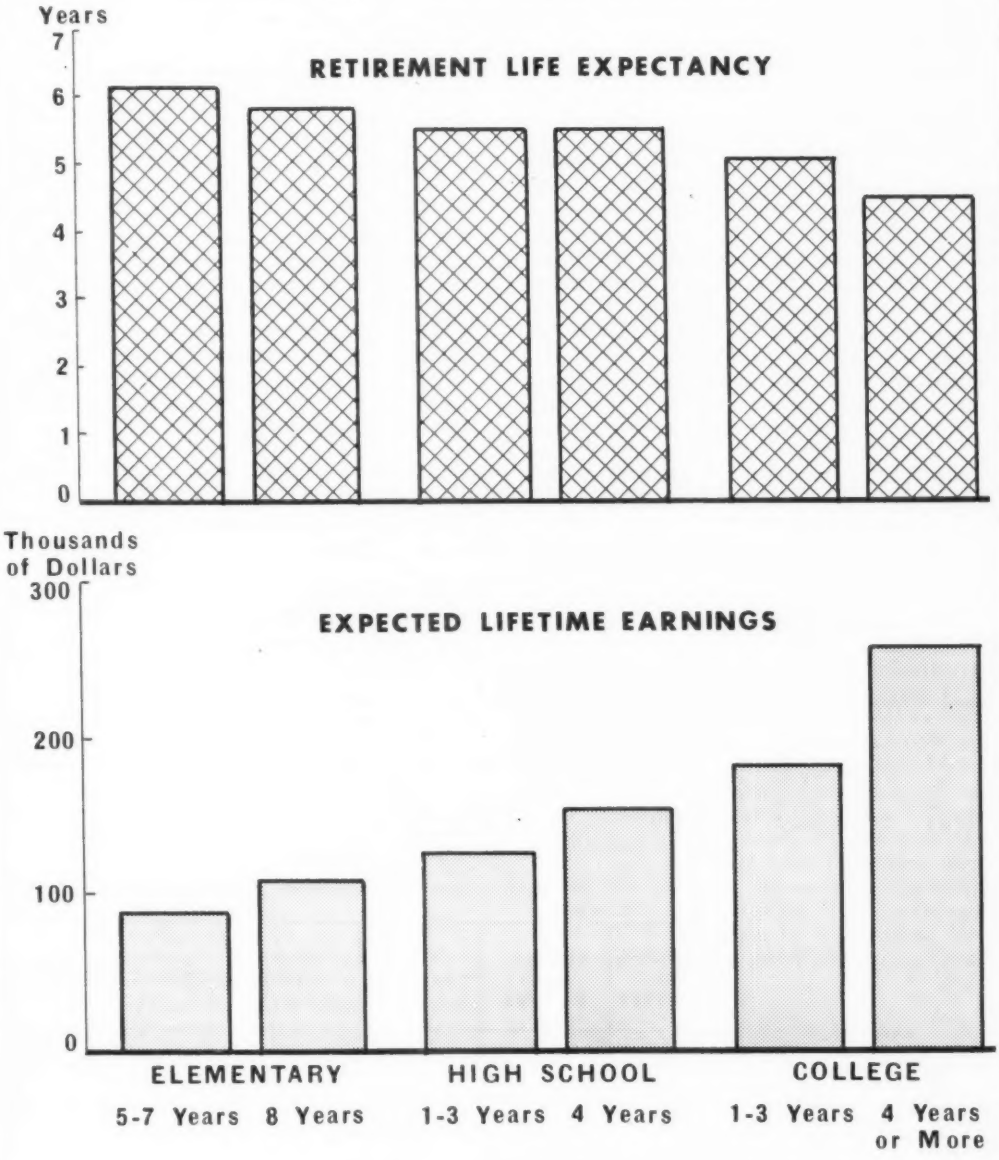
Rough estimates of lifetime earnings for a 25-year-old college graduate show an expected future income of about $260,000, compared with $155,000 for a high school graduate and $110,000 for those who have completed only the eighth grade. (A very small part of this advantage is, of course, due to the fact that the college graduate works longer.) Obviously, if the college graduate wished, he could retire earlier since his capacity to save is so much greater.

Most of the differences in lengths of working life are probably due to differences in the types of occupations persons with varying amounts of education enter. A high proportion of college graduates work in professional occupations, while men with relatively low educational levels are more often found in unskilled occupations.

Men in unskilled occupations are more subject to injuries on the job. Moreover, disabilities of any kind are more apt to limit their ability to go on working because their work usually requires strength and agility. For example, 4.4 percent of the men 35 to 44 years of age who had completed the eighth grade were not in the labor force (at work or seeking work), presumably because of disability. This figure compares with only 3.0 percent for those who had completed high school and 2.3 percent for college graduates in this same age group. Among men 55 to 64 years of age, 14.3 percent of those who had completed the eighth grade were not in the labor force, compared with 12.5 percent for men who had completed high school and 9.6 percent for college graduates. It would

[1] This study does not take into account differences in life expectancy of men with various levels of education, although data on death rates by broad occupational groups indicate that life expectancy is longer for men in professional occupations and shorter for unskilled persons.

Average Number of Years Remaining in Retirement and Expected Lifetime Earnings, For Men At Age 25, By Years of School Completed, 1950



Data derived from U. S. Bureau of the Census and National Office of Vital Statistics

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seem, then, that men in occupations where mental skills are more important than physical skills are able to work longer because they are less likely to be injured on the job, and any physical injury they receive, whether on or off the job, is less likely to limit their ability to work.

Educational Level and Retirement

As a result of being able to work longer, college graduates are also able to defer the income loss associated with retirement longer than men with less education. The loss of income for men after retirement can be estimated from recent (unpublished) Census Bureau data. The average income for all men over 65 who received income but did not work was $1,000 in 1956, compared with an average of $3,500 for those who worked all that year at full-time jobs. This sharp drop in income is aggravated by the fact that it occurs at an age when medical costs may be expected to rise. The ability to continue working for a few more years may mean the difference between a comfortable old age and one of relative hardship. Here again persons with more education have the advantage. The new work-life study indicated that a 65-year-old man who graduated from college can expect to live 12.7 years and to work 8.9 years, leaving a retirement life expectancy of 3.8 years. Assuming the same life expectancy, men of the same age who completed high school can look forward to working 7.9 years and to spending 4.8 years in retirement, while men with an eighth grade education can expect to work 7.5 years, leaving a retirement life expectancy of 5.2 years. About 34 out of 100 male college graduates over 75 years of age were still at work in 1950, compared with about 23 out of 100 men who had completed high school and only 19 out of 100 who had completed only 8 years of schooling.

Expected number of years of life, work, and retirement remaining for men of specified ages, by years of school completed, 1950[1]

Age	Total life expectancy, 1950	Work-life expectancy (years)					
		Elementary, 5-7 years	Elementary, 8 years	High school, 1-3 years	High school, 4 years	College, 1-3 years	College, 4 years
25	44.4	38.3	38.6	38.9	38.9	39.3	39.9
35	35.2	29.0	29.3	29.6	29.6	30.1	30.7
45	26.6	20.2	20.5	20.8	20.9	21.3	21.9
55	19.0	12.7	13.1	13.4	13.5	13.8	14.4
65	12.7	7.3	7.5	7.9	7.9	8.3	8.9
		Retirement life expectancy (years)					
		Elementary, 5-7 years	Elementary, 8 years	High school, 1-3 years	High school, 4 years	College, 1-3 years	College, 4 years
25	44.4	6.1	5.8	5.5	5.5	5.1	4.5
35	35.2	6.2	5.9	5.6	5.6	5.1	4.5
45	26.6	6.4	6.1	5.8	5.7	5.3	4.7
55	19.0	6.3	5.9	5.6	5.5	5.2	4.6
65	12.7	5.4	5.2	4.8	4.8	4.4	3.8

[1]Basic data are from U. S. Bureau of the Census and the National Office of Vital Statistics.

THE USE OF TELEVISION IN GUIDANCE

A Case History of the Experimental Program in Washington County, Maryland

by Catherine L. Beachley *

The guidance department of the Washington County Board of Education, as part of the Washington County (Md.) Closed-Circuit Television Project, has been providing televised guidance instruction to the students of Hagerstown, Md., and surrounding area for the past 3 years. Starting with a network of 8 schools and 6,800 pupils in September 1956, the program grew rapidly until it included all 49 of the county's schools, with over 18,000 pupils, by September 1958. Throughout this period, the guidance department, in conjunction with the school counselors and interested teachers in the respective schools, has presented a weekly series of half-hour guidance telecasts, planned for voluntary viewing by appropriate student groups.

A great deal of innovation and experimentation has taken place in the course of this work, and there has been an opportunity to observe and test the effectiveness of various techniques and approaches. While the program is still essentially experimental, enough has been learned to warrant some comments and conclusions that may be informative to persons interested in vocational guidance.

How the Program Works

In elementary schools, all instruction by television is received in regular classrooms on 21-inch screens. In junior high schools, a plan is being tried whereby children are gathered into large viewing groups for a part of their televised instruction. In senior high schools, classes are somewhat larger than usual when a part of the instruction is by television.

Up to the present, all telecasting has originated at the Television Center of the Board of Education. It will be possible, when equipment is available, to originate lessons from the North Hagerstown High School, the South Hagerstown High School, the Washington County Museum of Fine Arts, and the Washington County Free Library. (See chart.)

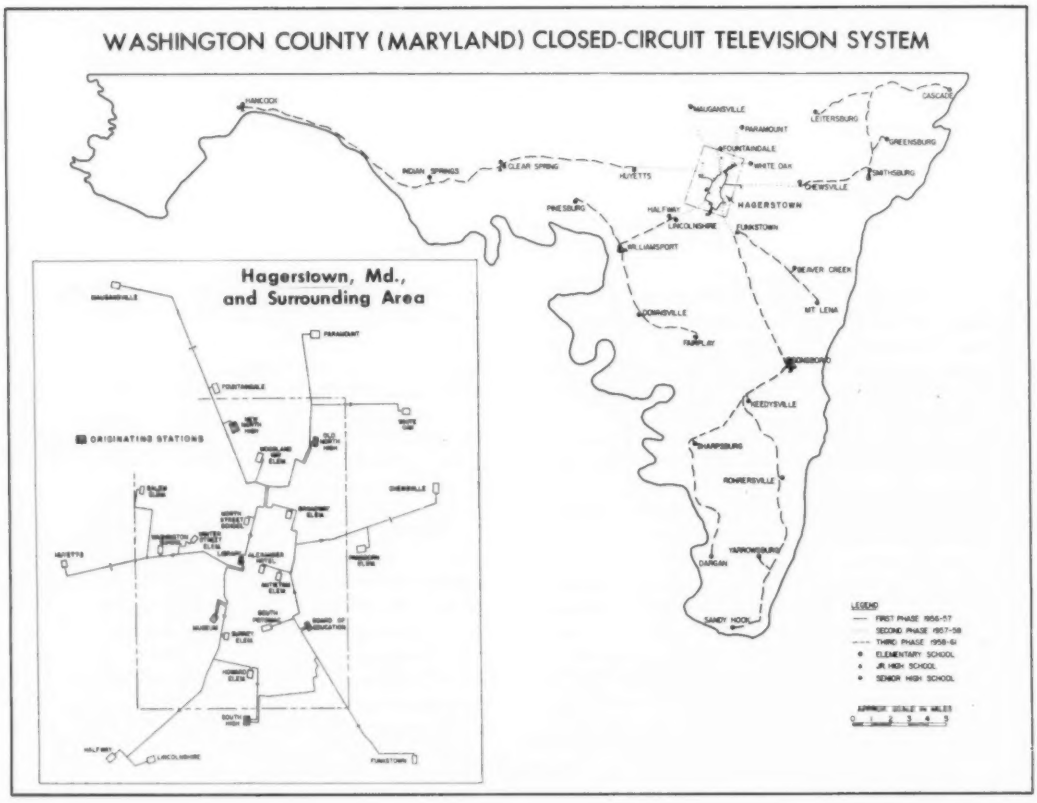
The video and audio signals are carried by coaxial cable to transmitters which distribute the signals over cables to all the schools in the circuit. By using transmitters operating on different frequencies, it is possible to send six lessons simultaneously over the cables. About 120 half-hour programs are currently being transmitted each week on the 6 channels.

Four organizations are primarily concerned with the television project. The Electronic Industries Association has provided all the equipment now in use, including receivers for the classrooms. The Fund for the Advancement of Education has underwritten the cost of designing, training for, and operating the project. The Chesapeake and Potomac Telephone Company of Maryland, with technical advice from the Bell Laboratories, developed the system of communication for transmitting telecasts to classrooms. The entire project is controlled by the Board of Education of Washington County.

Using Television in Guidance

In general terms, the plan for using TV for guidance purposes is to present programs which give students a broad orientation in several of the major areas of concern to counselors--adjustment to school and social life, curriculum planning, and vocational guidance. Because

*Miss Beachley is Supervisor of Guidance and Research for the Washington County Board of Education, Maryland.



television allows only a one-way communication from program originators to the students, the individual counselors must complement these telecasts in personal contacts with the students.

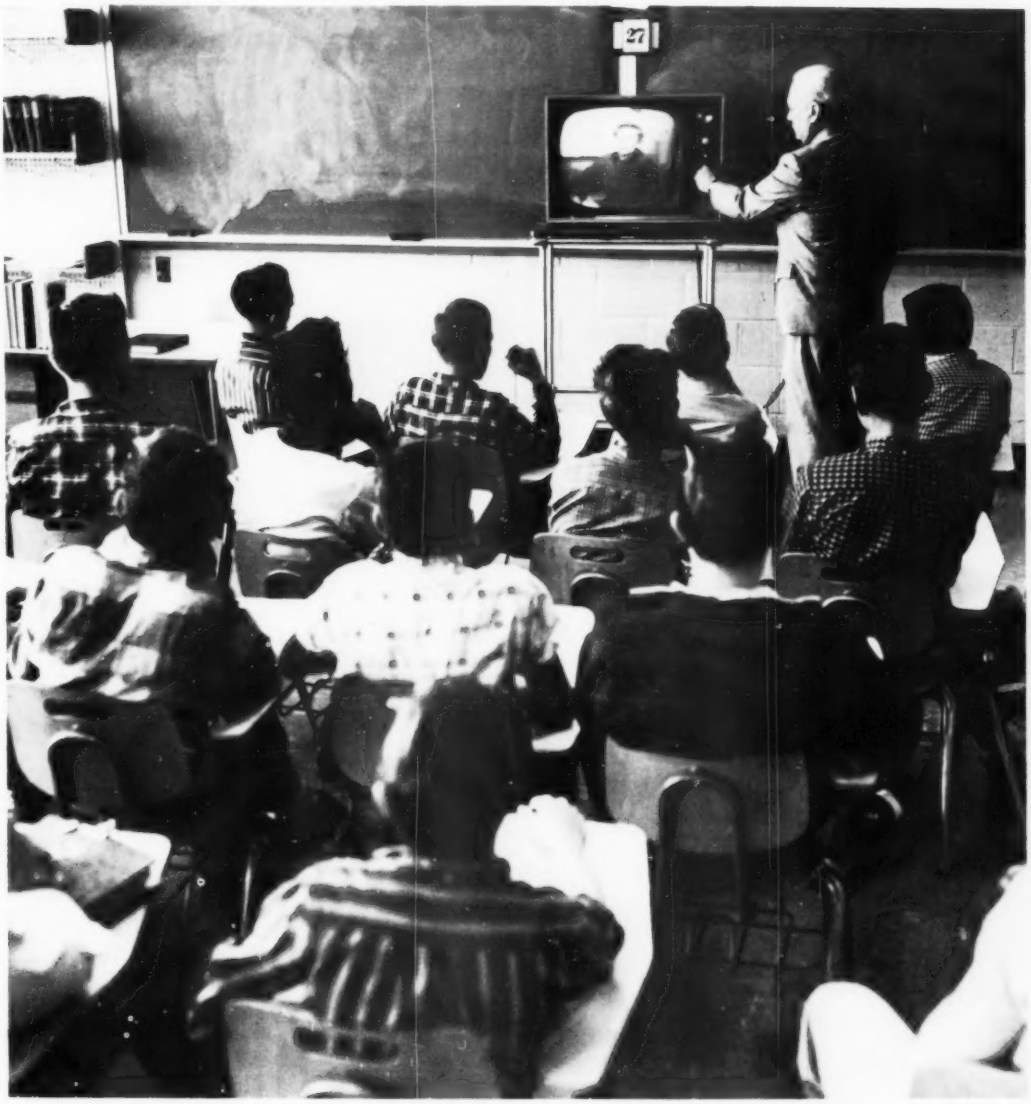
The guidance department, using as special guests the best qualified people available in the local community, in State and National Government agencies, and in other outside organizations, has offered several series of guidance information programs to pupils. A series entitled "This Is Your Question" was devoted to discussion of youths' personal problems relative to dating, staying in school, health, and personal relationships. A curriculum choice series entitled "Plan Ahead" aided students in selecting their subjects for the ensuing year. A "College Days" series served to aid senior high school students weigh the advantages of specific colleges. "Careers for Tomorrow" informed teen-agers about the jobs in the world of tomorrow, and another series, "It's Your Choice," informed senior boys on the opportunities offered by the different branches of the Armed Forces. Last year's guidance telecasts concluded with a program on orientation for sixth grade pupils who were preparing to enter junior high school.

The guidance telecasts have employed various techniques to transmit information, including silhouettes, question periods, original skits, student and adult panels, movies, film clips, interviews, plays, revues, style shows, demonstrations, and songs and dances--all accompanied by a wide variety of visual aids. At the end of each program, the school counselors (where the telecast has been received) present to specific pupils as "give aways" col-

lege catalogs, pamphlets, reading lists, and other materials helpful in giving information on the topics presented. Discussion periods follow the guidance telecasts, not always immediately, but sometime later on, between the pupils and either the counselors or teachers concerned with some aspect of the communicated information.

Advantages for Vocational Guidance

Guidance programs, which are mainly directed at grades 7 through 12, are usually telecast between 12 noon and 1 p.m., and attendance is voluntary. Attendance has consistently exceeded expectations. The size of the listening



Students view a guidance program in their classroom

Guidance program on clerical occupations demonstrates use of office machines

audiences ranged from 100 to as many as 1,600, depending upon the interest the scheduled topic had engendered. Under traditional group guidance methods, it would have been impossible for the presentations and demonstrations to have reached the large listening audiences made possible by the closed-circuit network.

The use of television makes well-qualified guest speakers available to all pupils in the system. For example, in a recent guidance telecast a highly skilled engineer in the field of metallurgy was able to reach all interested high school students. On another occasion, a florist, who is actually an artist in flower arrangement, was brought before 1,200 boys and girls at one time. This use of successful persons in the community and other special guests is a continuing part of the program. It has been of value not only as a method of presenting information to students but also as a means of demonstrating to the telecast participants the value of closed-circuit instruction. Since programs are received in several places outside the schools (see chart), the telecasts have also been effective in interpreting guidance to the public.

Future Plans

Plans for the guidance telecasts for the balance of this school year include a continuation and expansion of the types of programs presented last

year. A new series "Is This Important?"—replacing "This Is Your Question" of last year—dramatizes such topics as how to study, safety, good sportsmanship, and good manners.

The "College Days" format will remain the same but some new personalities from educational institutions not previously represented will face the camera.

Also, more and unusual careers are to be featured, including such new fields of endeavor as electronics and high altitude and space travel. Featured on "Careers for Tomorrow" will be the unusual opportunity for seniors to hear a discussion of the occupational outlook for high school graduates of 1959 by the U. S. Under Secretary of Labor, James T. O'Connell.

Stress will again be placed on the latest military guidance information on "It's Your Choice" so senior boys will know what their armed service obligations are and the most advantageous ways in which they can be met.

The "Plan Ahead" series will include some of the school's more recent curriculum offerings, such as journalism and radio workshop, as well as those subjects which are making daily newspaper headlines--science and mathematics. "Orientation" for students about to enter the seventh grade will again close the guidance closed-circuit telecasts for the year.

Guest speakers discuss opportunities in the skilled trades

EMPLOYMENT OUTLOOK FOR MANUFACTURERS' SALESMEN*

by Evelyn R. Kay

Sales workers are the link between producers of goods or services and the people who use their products. The things they sell include all items produced by American business--houses, automobiles, sheet steel, industrial machinery, gasoline, clothing, food, insurance, stocks and bonds, and newspapers, to cite a few illustrations from a virtually endless list. Their customers include not only housewives and other individual consumers but also government agencies and business enterprises of all kinds.

Altogether, more than 4 million workers were employed in sales occupations in 1958. Although most of these workers sell goods directly to individual customers, a small group of salesmen have the important job of selling manufacturers' products to other business concerns.

Nature of Work

Practically all manufacturers--whether they make airplanes or dolls, women's dresses or nuts and bolts--employ salesmen to sell their products. Manufacturers' sales representatives sell mainly to other business concerns--sometimes to factories, railroads, banks, or other companies which use the products in their businesses; sometimes to wholesalers or, less often, to big retail stores. They go to see officials of these companies in their offices to acquaint them with the manufacturer's products and to convince them that these products are better than similar items made by other manufacturers.

Salesmen of highly technical products, such as factory machinery, metals, chemicals, or other materials for use in manufacturing, are often called sales engineers or industrial salesmen. Since purchases of these products are likely to involve large investments of money, the people who must be "sold" on buying them are usually heads of departments or other factory executives. Sales engineers should have a thorough knowledge of their firm's products and a great deal of imagination and sales know-how in order to convince officials that buying new machinery or particular types of raw materials will make their operations more efficient and profitable. To do this, sales engineers may spend days or even weeks in their prospect's plants analyzing manufacturing problems and discussing technical details with the company's engineers. Often, they work with the research and development departments of their own companies, devising ways in which their products can be adapted to a customer's particular needs. After a sale is made and the equipment installed, sales engineers sometimes train employees to operate and maintain the equipment properly. They make frequent return visits to see that the equipment is giving the desired service. Because sales engineers may work several months with a prospect before completing a sale, they are not likely to make as many sales as other salesmen, but a single order may amount to hundreds of thousands of dollars.

Manufacturers' salesmen selling nontechnical products--for example, clothing, food products, or stationery and other office supplies--also need a thorough knowledge of the items made by their companies and a sales approach adapted to the particular kind of goods they handle. Thus, a salesman of crackers or cookies may emphasize the popularity of his manufacturer's products, the attractive way in which they are

*This article is one of a series of reports on fields of work which could not be covered in the 1957 edition of the Occupational Outlook Handbook. It is part of the Bureau's continuing program of occupational research.

packaged, and the many different kinds available. In selling clothing, a salesman needs a knowledge of style, design, fabrics, and the details of clothing manufacture.

Many salesmen handling nontechnical products sell chiefly to wholesalers. Their job is to call on wholesale houses in their territory to introduce new products and see that orders for established items keep coming in. In addition, they often set up displays in hotels and hold conferences with the wholesale salesmen in the area to encourage them to push the sale of their particular manufacturer's products. For the same reason, manufacturers' representatives may give wholesalers free advice on such problems as credit and pricing.

Besides selling to wholesalers and large retailers, salesmen of some types of products try to interest other groups in their products. For example, salesmen employed by drug manufacturers may call on members of the medical profession to distribute literature and samples of a new drug that has just become available.

Manufacturer's salesman points out to wholesale dealer the superior construction of a remote-control motor starter

Though manufacturers' salesmen spend most of their time in visiting prospective customers, they also do some paperwork when they are not busy selling. They must plan their work schedules, make appointments, compile lists of prospects, conduct some of their own sales correspondence, make out expense accounts, study literature relating to their products, and write reports which include information on the sales made and sometimes information on sales prospects in an area, their competitors' products, and the credit ratings of customers.

Where Employed

About 400,000 manufacturers' salesmen were employed in 1958. Some of these salesmen work out of their company's "home office," generally located at a manufacturing plant. However, most of them work out of branch offices, which are usually located in big cities where they can get the most customers. Over a third of the more than 23,000 home and branch sales offices maintained by manufacturers in 1954 were in the 10 largest metropolitan areas.

More salesmen work for companies which produce canned, frozen, and other packaged foods and meat, dairy, and bakery products than for companies in any other industry. Large numbers of technical salesmen are employed by manufacturers of machinery, such as office and store machines, tractors and other farm equipment, and industrial machinery. Companies manufacturing chemical products, particularly drugs, also employ large numbers of salesmen with specialized training. In addition, many salesmen work for manufacturers of apparel, fabricated metal products, textiles, paper and related products, and also in the rapidly growing field of electrical and electronic equipment.

Though manufacturers' salesmen often have large territories to cover and may do considerable traveling, those selling certain types of products have relatively small territories. For example, a salesman of heavy industrial equipment may be assigned a territory including several States. As a result, he may often be away from home for days or weeks at a time. On the other hand, a salesman working for a manufacturer of food products may work in such a small area that he can return home each evening.

Training and Other Qualifications

Manufacturing companies generally prefer to hire college graduates for training as salesmen. Most employers believe a college background is necessary since salesmen usually have to deal with high-level executives of other companies. As a rule, the job of selling complicated industrial equipment requires technical education; for example, manufacturers of electrical equipment, heavy machinery, and some types of chemicals, prefer to hire engineering or chemistry graduates for their sales staffs. Some training in medicine or pharmacy is usually required for jobs as drug salesmen. Persons with degrees in liberal arts or business administration are often preferred by manufacturers of nontechnical products. However, it is still possible for persons with little or no college education to become manufacturers' salesmen if they have exceptional selling ability.

Although prospective salesmen can often get jobs by applying directly to sales offices of manufacturing concerns, many manufacturers send recruiters to colleges and universities to interview students who are about to graduate. Recruiters look for students who have not only the required academic qualifications but also records of participation in extracurricular activities. Since salesmen must be able to meet and get along well with many kinds of people, recruiters pay close attention to the personality traits and appearance of students. Preference is likely to be given to those with pleasant but forceful personalities who make a good impression in manner, speech, and dress. A recruiter may hire directly or recommend applicants to his company. In some cases, several executives of a company interview applicants before making a final selection.

A beginning salesman is usually given some training before being sent out to sell. Some companies, especially those manufacturing complex technical products, have training programs which may last 2 or more years. During this time, the prospective salesman may be rotated among jobs in several different departments in the plant and office to learn all phases of production, installation, and distribution of the product. Other companies arrange to have trainees take university courses in subjects related to their products. Still others give short courses at the plant followed by intensive training in a branch office, under the supervision of field sales managers.

Sales representatives with good sales records and leadership ability may advance to higher level positions, such as sales supervisor, branch manager, or district manager. Those with unusual ability and managerial skill may move up to sales manager or other executive positions; a sizable proportion of the top executive jobs in industry are filled by men who were once salesmen. Because salesmen come in contact with people from other companies, they often find opportunities to transfer to better jobs in those companies. Some salesmen go into business for themselves as manufacturers' agents selling similar products of several manufacturers. Experienced salesmen can often find opportunities in related occupational fields, including training of sales representatives, advertising, and market research.

Employment Outlook

Well-qualified men are expected to be in strong demand as manufacturers' salesmen through the early 1960's. Competition in promoting the sale of products will continue to be keen as manufacturers push the sale of established items and, at the same time, introduce new products. However, the continued high demand for manufacturers' salesmen is likely to be accompanied by more selective hiring policies. It was evident in 1958 that companies were raising their hiring standards. They were looking for the "go-getter"--the salesman with topnotch ability to go out and make sales. This careful selection of new recruits will undoubtedly continue. It is also likely that more and more employers will look for technically trained men who can sell the increasingly complex equipment now being used in many industries.

The continued expansion of the Nation's economy expected over the long run will tend to increase the employment of manufacturers' salesmen. The growth in population and number of families will create a demand for more products. Rising standards of living will also create a wider market for goods already being produced as well as for products not yet on the market. As manufacturers compete with each other to get new and improved goods on the market, more salesmen will be required to acquaint wholesalers and other customers with the rapidly changing products. Better methods of introducing and distributing products--which manufacturers' salesmen help to work out--will be necessary to keep pace with the Nation's rapidly increasing productive capacity. Salesmen of factory equipment will also continue to be in demand to demonstrate to industrial buyers the importance of using improved methods of production and to sell them new factory equipment and raw materials.

Although expansion of sales departments will create many openings for new workers over the long run, replacement needs will be the major source of job opportunities for manufacturers' salesmen. Deaths and retirements alone will probably account for at least 8,000 job openings each year.

Earnings and Working Conditions

Monthly salaries averaging about $410 were offered in 1958 to male college graduates hired for sales work by large companies. The average starting salary for those with the master's degree was approximately $445. Inexperienced people without college degrees generally start out in other types of jobs at lower salaries but may be given

training at company expense to prepare them for higher earnings as salesmen later.

Some manufacturing concerns pay their salesmen a straight commission based on the dollar amount of sales made; others pay a fixed salary without regard to the amount of sales. However, most companies (about 70 percent in 1955) use a combination of these two plans. Although this method provides a fixed salary with an opportunity to earn a substantial additional amount through commissions, an upper limit on total earnings is set by some firms. Since the amount earned through commissions varies according to the salesman's ability, geographical location, nature of products sold, types of customers, the percentage of commission allowed, and other factors, it is difficult to present the average earnings of experienced salesmen. However, technical salesmen are usually the best paid. A survey of the earnings of all types of salesmen in more than 500 companies was made in 1955 by a private organization. When the highest paid salesmen in each of these companies were grouped together, their median (average) earnings were found to be $12,400; for most of these top paid salesmen, earnings fell between $9,500 and $19,000. When the lowest paid salesmen in the companies were grouped together, their median earnings were found to be $6,900, and most of them made between $5,000 and $8,000. The highest salaries are usually paid to top sales executives--sales managers or vice presidents in charge of sales. Their median base salaries, excluding bonuses, were $15,000 in small companies and $22,000 in large companies, according to a 1957 report. Bonuses of these executives generally averaged from 10 to 20 percent of base pay.

Salesmen are usually reimbursed for their expenses when away from home on business trips. Some of the items which may be included in expense accounts are transportation costs, hotel bills, meals, tips, customer entertainment, telephone calls, and stenographic services. Some companies either provide a car or pay an allowance to salesmen who use their own cars.

Salesmen have no standard working hours since they make calls at the times most convenient to their customers. Also, they often have to travel at night or on weekends. Frequently, they spend evening hours writing reports, planning itineraries, and scheduling appointments. However, in most cases, salesmen are free to plan their own work and can often arrange their schedules to have time off when they want it. Most salesmen have paid vacations of from 2 to 4 weeks, depending on their length of service. They usually share in company benefit programs, including life insurance, pensions, and hospital, surgical, and medical benefits.

TRAVELING SCIENCE LIBRARIES WILL REACH 1,350 HIGH SCHOOLS THIS YEAR

Many young people with scientific and mathematical interests and abilities have been lost to these career fields. Such losses have resulted, in part, from lack of suitable reading materials which would encourage students to pursue their scientific and mathematical curiosities, develop their knowledge of these fields of work, and make them aware of the employment opportunities available to qualified workers in science and mathematics.

To help students discover, develop, and pursue their scientific and mathematical interests and abilities, and to help the Nation meet its needs for trained workers in these occupational fields, a Traveling High School Library Program is being sponsored by the National Science Foundation and administered by the American Association for the Advancement of Science (AAAS). During 1958-59, about 1,350 senior high schools, representing every State and Territory, are participating in the program. Approximately 1,500 senior high schools and comparable preparatory schools will receive this program during the 1959-60 school year.

The general purposes of the traveling science library are to encourage reading of science and mathematics books, to broaden the science background of high school students, and to assist students who have interests in science and mathematics with their choice of careers. The entire traveling library consists of 350 sets of books. Each set contains 200 books, which are divided into 8 units of 25 books. Each unit is placed in a small traveling case that can also be used for displaying the books in the school library. The general plan of operation is to send each participating school 50 books which may be used for a period of 2 months. An exchange of units is then made with 3 other schools so that by the end of the academic year 4 schools will have had the use of 200 books.

Biographies and autobiographies, histories of science and mathematics, and books on applied science are well represented in the collection. An attempt has been made to provide a very broad range of subject matter so that a student may have the opportunity to acquaint himself with the major branches of science and to learn of the practical application of the sciences and mathematics to research, to the professions, and to industry.

Most of the books were chosen because of their potential appeal to the general reader with little or no background in science and an understanding of mathematics that extends only through elementary algebra and plane geometry. A few books are somewhat more advanced and

The Traveling Science Library is shipped to schools in small cases which can be used for display

The Traveling Science Library is exhibited for various groups of people interested in science and mathematics

will provide an incentive to the exceptional senior high school student.

Schools incur no expense as participants in the program, for the AAAS pays the cost of transporting the books. If books are lost, however, while they are in use at a school, the AAAS expects reimbursement for two-thirds of the list price of the lost books.

Principals of high schools who wish to participate in the program can request an application blank from the AAAS. Not all requests may be granted, however, since the number of applicants usually exceeds the number of schools that can be accepted. In selecting schools, the AAAS tries to choose those that (a) appear to have the greatest need for the program, and (b) appear to have a potentiality for making the best use of the books in relation to the objectives of the program.

The traveling science library books are also being made available to a variety of reader groups in addition to high school students. A few sets are being used, on an experimental basis, in county library systems for circulation in rural areas. Exhibitions of the science library have also been scheduled during 1958-59 at national and regional meetings of scientific, professional, and educational organizations. Because of the interest

shown in the collection by nonspecialist adults when choosing books for their own or their children's recreational reading, exhibitions at a number of public libraries in large cities will also be scheduled.

High schools wishing to provide adequate scientific material for reference, research, and recreational reading may use the traveling science library book list as a guide when purchasing books for their own permanent collections. This list, an annotated catalog of the 200 books in the collection, is available for 25 cents from the American Association for the Advancement of Science, 1515 Massachusetts Avenue NW., Washington 25, D.C. Also available at the same price is a booklet entitled An Inexpensive Science Library which lists over 300 paperbound science and mathematics books suitable for high school students and nonspecialist adult readers.

IMPROVING THE TEACHING OF FOREIGN LANGUAGES

Several recommendations for improving the teaching of foreign languages were advanced at a recent conference of foreign language specialists sponsored by the U. S. Office of Education:

- The study of foreign languages should begin in the third grade and continue through high school.
- The number of foreign languages taught should be increased.
- Laboratory facilities for foreign language students should be provided.
- Language libraries, featuring foreign publications and tape recordings, are also needed.

A 166-page report on the conference, Modern Foreign languages in the High School (Bull. 1958, No. 16), is available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Price, $1.

EARNINGS OF OFFICE AND PLANT WORKERS IN 19 LABOR MARKETS, 1957-58*

Pay levels for office and plant workers continued their upward trend in 1957-58, according to a recent survey of 19 labor markets conducted by the Bureau of Labor Statistics.[1] Increases during 1957 for all the areas averaged a little more than 5 percent for 3 of the 4 occupational groups for which wage trends data were computed--industrial nurses (women), skilled maintenance workers, and unskilled men plant workers. These increases were slightly higher than in 1956. On the other hand, for women office workers, the fourth occupational group, the average increase in 1957 was substantially less than in 1956 (4.3 compared with 5.3 percent).

The occupations covered included 14 clerical occupations for women and 14 plant occupations for men, as well as industrial nurses (women) and draftsmen (men). (See tables.)

Over the 5-year period between 1953 and 1958, increases in all-industry average earnings for workers in the 4 occupational groups considered ranged from 24.8 percent for women office workers to 29.1 percent for women industrial nurses in the 10 areas which were studied every year from 1953 to 1958.[2] Earnings of unskilled plant and skilled maintenance groups increased 25.9 and 26.6 percent, respectively.

In most of the occupations covered by the 1957-58 survey, average earnings were highest in Chicago, Cleveland, Los Angeles-Long Beach, or San Francisco-Oakland. For example, pay levels in these cities were at 105 to 106 percent of the New York City level (expressed as 100) for office clerical workers and from 106 to 114 percent for skilled maintenance workers. (See table 4.) Pay levels for these two groups were lowest in Atlanta, Boston, Dallas, Memphis, and New Orleans. In these cities, pay levels were from 84 to 93 percent of the New York level for office workers and from 91 to 95 percent for skilled maintenance workers.

In general, average earnings of plant and office workers tended to be higher in manufacturing than in nonmanufacturing industries but, within these groups, pay levels varied widely. In fact, average rates in individual nonmanufacturing industries, especially public utilities and wholesale and retail trade, often equaled or exceeded those in manufacturing.

Among office workers in the 6 jobs studied in both manufacturing and nonmanufacturing industries, pay levels for men were higher than those for women in all 19 areas.

The following tables give key information on average earnings and pay levels of the workers in office and plant jobs

*This article is based on a forthcoming report entitled Wages and Related Benefits, 19 Labor Markets, 1957-58 (BLS Bull. No. 1224-20), prepared by the Division of Wages and Industrial Relations.

[1]The 19 areas covered are shown in the tables. Coverage was limited to establishments with 51 or more workers, except in 10 of the largest areas where the minimum size was 101 employees for manufacturing, public utilities, and retail trade. Other industry divisions covered were transportation (except railroads) and communications; wholesale trade; finance, insurance, and real estate; and selected service establishments (municipally owned utilities and other government-owned establishments were excluded).

[2]Median area increases among the 10 of the 19 areas surveyed in 1957-58, which were also studied in each of the years 1953-58. These areas include New York City, Philadelphia, Atlanta, Dallas, Memphis, Chicago, Minneapolis-St. Paul, Los Angeles-Long Beach, Portland (Oreg.), and San Francisco-Oakland. The "5-year period" covered 67 months in Portland and 60, 61, or 62 months in the other 9 areas.

in the 19 labor market areas. In studying these tables, one must remember that each average represents a wide variation of pay rates. The rates for a single occupation vary from one industry to another in an area, and even within an individual plant or office. Particularly in the case of office workers, length of service has considerable influence on individual pay rates. Also, differences in survey timing among areas accounted for some of the interarea variation in the relative increases in earnings. To cite the extreme, Cleveland showed the largest increases during the period since the 1956-57 survey. However, the lapsed time in Cleveland was 20 months between surveys compared with from 10 to 13 months between surveys in the other 12 areas surveyed in both periods.

* * * * *

Complete reports on the occupational wage surveys discussed in this article are available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., or from the BLS regional offices listed on page 2. The bulletins are listed below.

Area	Survey date	Bull. No.	Price
Atlanta	May 1958	1224-17	25¢
Baltimore	August 1957	1224-3	25¢
Boston	September 1957	1224-2	25¢
Chicago	April 1958	1224-14	25¢
Cleveland	June 1958	1224-19	25¢
Denver	December 1957	1224-7	25¢
Los Angeles-Long Beach	March 1958	1224-13	25¢
Memphis	January 1958	1224-9	25¢
Milwaukee	May 1958	1224-18	25¢
Minneapolis-St. Paul	January 1958	1224-10	25¢
Newark-Jersey City	December 1957	1224-12	25¢
New Orleans	February 1958	1224-11	20¢
New York City	April 1958	1224-15	25¢
Philadelphia	October 1957	1224-6	25¢
Portland (Oreg.)	April 1958	1224-16	25¢
San Francisco-Oakland	January 1958	1224-8	25¢
Seattle	August 1957	1224-1	20¢
St. Louis	November 1957	1224-5	25¢

NOTE: The report for Dallas (Tex.) is out of print.

TABLE 1. Average weekly salaries[1] for women in selected office occupations, 19 areas, winter 1957-58

Area	Bookkeeping-machine operators		Clerks, accounting		Clerks, file, class B	Clerks, payroll	Comptometer operators
	Class A	Class B	Class A	Class B			
Northeast:							
Boston	$63.00	$55.50	$68.50	$56.50	$47.00	$63.00	$57.50
Newark-Jersey City	73.00	58.00	76.50	62.50	50.50	71.50	68.00
New York City	74.50	63.50	81.00	64.50	54.00	75.50	68.50
Philadelphia	67.00	56.50	72.50	57.50	47.50	65.00	62.00
South:							
Atlanta	63.00	59.00	74.50	57.00	47.50	64.50	62.50
Baltimore	65.50	51.50	70.50	58.00	46.00	66.00	63.50
Dallas	66.50	55.00	70.00	59.50	47.00	64.50	61.50
Memphis	68.00	52.50	67.50	54.50	46.50	59.50	54.50
New Orleans	62.00	52.50	74.00	56.00	45.50	59.00	58.00
North Central:							
Chicago	80.50	68.00	84.00	68.00	55.50	76.50	72.00
Cleveland	79.00	64.50	81.50	69.00	57.00	76.00	71.50
Milwaukee	73.50	60.00	81.00	62.50	56.00	67.00	61.00
Minneapolis-St. Paul	69.00	56.50	73.00	57.50	48.50	65.50	62.50
St. Louis	64.50	56.00	77.00	58.50	50.50	65.00	63.50
West:							
Denver	71.00	56.00	72.00	60.00	52.50	67.00	60.50
Los Angeles-Long Beach	81.50	62.00	84.00	70.00	55.00	78.50	76.00
Portland	76.00	59.50	79.00	67.00	49.50	70.50	67.00
San Francisco-Oakland	81.00	60.50	79.50	68.50	55.00	80.50	72.00
Seattle	72.50	58.00	74.00	62.50	54.50	71.00	66.00

Area	Key-punch operators	Office girls	Secretaries	Stenographers, general	Switchboard operators	Typists	
						Class A	Class B
Northeast:							
Boston	$57.50	$47.50	$71.50	$61.50	$58.50	$58.50	$51.00
Newark-Jersey City	63.50	53.50	83.00	67.50	65.50	65.00	55.50
New York City	63.50	51.00	85.00	69.00	67.50	66.00	58.50
Philadelphia	60.00	46.50	78.00	64.50	60.50	62.50	52.50
South:							
Atlanta	60.00	48.00	77.50	65.50	56.50	59.50	50.00
Baltimore	58.50	46.00	76.00	64.00	57.00	64.00	51.50
Dallas	59.00	46.50	77.00	66.50	53.50	59.00	51.00
Memphis	58.50	45.50	66.00	58.50	43.50	58.00	46.50
New Orleans	58.50	40.50	76.50	62.00	46.00	56.00	50.00
North Central:							
Chicago	69.50	56.50	87.00	74.00	68.00	71.00	61.00
Cleveland	71.50	57.50	89.50	74.00	69.00	73.00	62.50
Milwaukee	63.00	50.00	83.50	66.50	61.50	67.00	56.50
Minneapolis-St. Paul	56.00	46.50	74.00	62.00	60.00	59.00	52.00
St. Louis	62.50	50.50	79.00	63.50	60.50	62.50	53.50
West:							
Denver	59.50	47.50	79.00	66.50	56.50	59.50	53.00
Los Angeles-Long Beach	74.00	57.50	87.00	75.00	70.00	70.50	60.50
Portland	67.00	49.00	80.50	69.00	60.50	64.50	56.50
San Francisco-Oakland	68.00	57.50	85.00	74.00	68.50	70.50	59.50
Seattle	65.50	55.50	82.00	69.50	64.50	65.00	54.50

[1]Average weekly salaries are earnings based on hours for which employees receive their regular straight-time salaries.

TABLE 2. Average hourly earnings [1] for men in selected plant occupations, 19 areas, winter 1957-58

Area	Carpenters, maintenance	Electricians, maintenance	Guards	Helpers, trades, maintenance	Janitors	Laborers, material handling	Machinists, maintenance
Northeast:							
Boston	$2.32	$2.44	$1.80	$1.90	$1.50	$1.67	$2.44
Newark-Jersey City	2.66	2.78	2.00	2.07	1.74	2.09	2.72
New York City	2.47	2.52	1.77	2.02	1.62	1.88	2.70
Philadelphia	2.60	2.61	1.63	2.18	1.58	1.83	2.64
South:							
Atlanta	2.21	2.56	2.13	1.69	1.20	1.52	2.45
Baltimore	2.34	2.51	1.93	1.96	1.45	1.79	2.70
Dallas	2.25	2.28	1.76	1.58	1.22	1.42	2.38
Memphis	2.13	2.41	1.93	1.52	1.20	1.38	2.50
New Orleans	2.19	2.54	1.38	1.79	1.04	1.39	2.52
North Central:							
Chicago	2.83	2.90	2.00	2.27	1.76	1.96	2.89
Cleveland	2.69	2.78	2.20	2.27	1.81	2.14	2.73
Milwaukee	2.63	2.80	2.03	2.08	1.80	2.10	2.89
Minneapolis-St. Paul	2.72	2.77	1.98	2.14	1.65	2.03	2.69
St. Louis	2.63	2.77	2.00	2.30	1.58	1.91	2.82
West:							
Denver	2.53	2.56	1.99	1.91	1.48	1.90	2.51
Los Angeles-Long Beach	2.65	2.81	2.15	2.28	1.74	2.09	2.80
Portland	2.79	2.84	[3]	2.14	1.69	2.09	2.76
San Francisco-Oakland	2.80	2.90	1.82	2.33	1.90	2.19	2.86
Seattle	2.49	2.62	2.01	2.04	1.66	2.02	2.61

Area	Mechanics (automotive), maintenance	Order fillers	Painters, maintenance	Tool and die makers[2]	Truck-drivers	Truckers, power (forklift)	Watchmen
Northeast:							
Boston	$2.18	$1.75	$2.08	$2.62	$2.09	$1.97	$1.50
Newark-Jersey City	2.37	2.05	2.46	2.76	2.58	2.20	1.63
New York City	2.41	1.89	2.23	2.78	2.56	2.34	1.70
Philadelphia	2.45	1.97	2.36	2.72	2.36	2.03	1.57
South:							
Atlanta	2.15	1.51	2.19	[3]	1.93	1.80	1.28
Baltimore	2.24	1.62	2.17	2.79	2.03	2.12	1.34
Dallas	2.06	1.51	2.05	2.54	1.77	1.70	1.23
Memphis	2.19	1.37	2.01	2.77	1.74	1.52	1.08
New Orleans	2.20	1.41	2.01	[3]	1.61	1.70	1.10
North Central:							
Chicago	2.71	1.99	2.90	3.05	2.52	2.21	1.37
Cleveland	2.60	2.11	2.52	2.89	2.48	2.27	1.67
Milwaukee	2.56	2.09	2.64	3.02	2.45	2.25	1.60
Minneapolis-St. Paul	2.42	1.96	2.77	2.81	2.29	2.17	1.73
St. Louis	2.46	1.92	2.62	2.89	2.36	2.11	1.42
West:							
Denver	2.41	1.83	2.44	2.70	2.04	1.99	1.48
Los Angeles-Long Beach	2.61	2.12	2.55	2.88	2.36	2.24	1.82
Portland	2.55	2.03	2.78	2.83	2.26	2.17	1.85
San Francisco-Oakland	2.75	2.23	2.72	3.15	2.50	2.28	1.95
Seattle	2.56	2.05	2.51	2.88	2.32	2.10	1.87

[1] Average hourly earnings are straight-time hourly earnings, excluding premium pay for overtime and for work on weekends, holidays, and late shifts.

[2] Other than in tool and die jobbing shops.

[3] No data reported or data that do not meet publication criteria.

TABLE 3. Average weekly salaries[1] for draftsmen and industrial nurses, 19 areas, winter 1957-58

Area	Draftsmen (men)			Women industrial nurses
	Leader	Senior	Junior	
Northeast:				
Boston	$142.00	$107.00	$79.50	$76.50
Newark-Jersey City	126.50	107.50	80.00	84.50
New York City	159.00	126.00	84.00	90.00
Philadelphia	148.50	105.00	82.00	82.00
South:				
Atlanta	154.00	105.50	78.00	86.00
Baltimore	135.00	107.00	74.50	85.00
Dallas	114.50	92.00	74.00	81.00
Memphis	[2]	107.50	66.50	77.50
New Orleans	[2]	109.50	75.50	80.00
North Central:				
Chicago	140.00	121.50	87.00	89.00
Cleveland	141.00	117.50	91.50	92.00
Milwaukee	138.50	110.00	86.00	83.50
Minneapolis-St. Paul	[2]	101.50	80.50	82.00
St. Louis	142.00	112.50	84.00	80.50
West:				
Denver	150.00	122.00	81.00	81.00
Los Angeles-Long Beach	141.00	111.50	85.00	93.50
Portland	[2]	105.00	88.00	80.00
San Francisco-Oakland	124.00	108.50	85.50	89.00
Seattle	112.50	96.50	73.50	89.00

[1]Average weekly salaries are earnings based on hours for which employees receive their regular straight-time salaries.

[2]No data reported or data that do not meet publication criteria.

TABLE 4. Relative pay levels for officeworkers[1] and plant workers,[2] 19 areas, winter 1957-58
[New York City level=100]

Area	Officeworkers			Plant workers			
	Total	Men	Women	Total[3]	Maintenance	Custodial	Material movement
Northeast:							
Boston	89	96	89	93	94	95	91
Newark-Jersey City	99	107	98	108	106	106	110
New York City	100	100	100	100	100	100	100
Philadelphia	94	100	93	100	104	96	100
South:							
Atlanta	91	96	90	83	91	77	82
Baltimore	93	106	92	94	101	90	94
Dallas	93	101	92	80	91	77	78
Memphis	84	96	82	78	92	75	74
New Orleans	87	92	87	75	95	64	72
North Central:							
Chicago	105	111	105	106	112	105	104
Cleveland	106	117	105	108	106	107	109
Milwaukee	98	109	96	107	107	106	108
Minneapolis-St. Paul	91	100	90	104	105	103	104
St. Louis	95	103	93	102	108	97	102
West:							
Denver	94	98	93	97	101	95	97
Los Angeles-Long Beach	106	111	106	108	108	109	108
Portland	99	113	97	106	109	106	105
San Francisco-Oakland	105	112	104	115	114	118	114
Seattle	100	110	99	107	106	109	106

[1]These indexes are based on weekly salaries for the following occupations: Men--clerks, accounting, class A; clerks, accounting, class B; order clerks; office boys; tabulating-machine operators; Women--billers, machine (billing); bookkeeping-machine operators, class B; comptometer operators; accounting clerks, class A; accounting clerks, class B; file clerks, class B; payroll clerks; key-punch operators; secretaries; stenographers, general; switchboard operators; typists, class A; typists, class B.

[2]The indexes for the various plant-worker groups are based on data for the following occupations: Maintenance—automotive mechanics, carpenters, electricians, machinists, mechanics (machine repairmen), and painters; custodial--guards, janitors, janitresses, and watchmen; material movement--forklift operators, material handling laborers, order fillers, shipping packers, shipping and receiving clerks, and truckdrivers.

[3]Total includes maintenance, custodial, and material movement plant workers.

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*This index covers only issues published since the publication of the 1957 edition of the Occupational Outlook Handbook, which this periodical is designed to supplement. It thus excludes the first two issues of Volume 1.

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